

# Advisory Note on Increasing Knowledge and Awareness of Cabin Air Quality for Aviation Personnel

(Note: English translation by Stichting Fly Aware)

The National Cabin Air Advisory Group (NAC) provides concrete advice in this advisory note regarding the training of cabin, cockpit, and technical personnel, as well as the reporting of incidents related to cabin air quality. This note is presented by the NAC to the Minister of Infrastructure and Water Management.

The objective of this advisory note on the training of cabin, cockpit, and technical personnel is to:

- \* Increase knowledge and awareness of cabin air quality.
- \* Enable recognition of odors, fume events (the release of gasses, vapors and/ or smoke through a chemical process such as combustion, heating, or explosions), and symptoms.
- \* Define methods and procedures for reporting incidents.
- \* Provide instructions for follow-up after a flight with odor or fume events.

## Recommendation from the Technical Report on Training

The Technical Report NPR-CEN/TR 17904 ( <https://www.nen.nl/npr-cen-tr-17904-2022-en-303562> ) includes the following recommendation (section 11.1):

*"Airline operators shall develop and implement training/education programmes for pilots, cabin crew, and maintenance workers to enable them to recognize, respond to, and document the suspected/confirmed presence of transient/sustained ventilation supply air system-sourced fumes. This training and education shall be provided at regular intervals, including initial training, and at least annually.*

*Airline operators shall review and update their training/education programmes and supporting materials on at least an annual basis to ensure that the delivery is effective, and the information is current.*

*Airline operators shall maintain a record of workers' participation."*

## Observations by the NAC

The NAC has observed a decrease in the number of reports of fume events and/or unusual odors submitted to the Aviation Incident Analysis Bureau (ABL) of the ILT (Inspectorate of Living Environment and Transport). It is unclear whether this decrease reflects an actual reduction or if incidents are occurring but not being detected or reported.

Cabin, cockpit, and technical personnel, as well as passengers, have the option to report odor and health incidents directly to the ABL ( direct

reporting is possible at <https://www.ilent.nl/onderwerpen/voorvallen-luchtvaart> ). These reports are collected by the ABL in accordance with European Regulation 376/2014, which outlines how the ABL should handle these reports while ensuring confidentiality.

It is also possible to make anonymous reports, although awareness of this reporting route is relatively low. It has been identified that the standard terms used to describe incidents in reports are not detailed enough. This lack of detail hinders the ABL's ability to analyze reports thoroughly, resulting in insufficient insights from these reports.

A brief survey among active members of FNV Cabine (KLM) revealed that cabin crew members are not well-informed about different odors that are abnormal or alarming, and therefore need to be reported. The survey also indicated a lack of awareness among cabin crew regarding the potential risks (physical impact) of odors and fume events. Additionally, it was noted that if such incidents were to be recognized on board, the method of reporting is not well-known.

In a NAC meeting on December 13, 2021, VNV (Dutch Airline Pilots Association) mentioned that cockpit crew members are not trained to recognize these odors on board, and NVLT (Dutch Association of Licensed Aircraft Engineers) indicated that it was advised years ago that the sense of smell should not be actively used for detection according to Dutch occupational health and safety legislation.

## **NAC Opinion on Training**

In addition to other potential means of detection (such as installing sensors and detectors, which the NAC sees as important topics for further research), the NAC emphasizes the importance of training and raising awareness among employees. This includes recognizing odors, fume events, and symptoms that should trigger reporting, on-board actions, and potential medical follow-up. The NAC advises the Minister to recommend to airlines to establish a process for this purpose that aligns with the existing training provided by airlines to cabin, cockpit, and technical personnel.

The NAC underscores that the sense of smell should not replace equipment like detectors and sensors. The desire for further research into methods of filtering and monitoring contamination in cabin air remains. The NAC aims to create a comprehensive approach that ultimately better manages risks related to cabin air contamination. Training and information dissemination are integral to this approach, with the goal of enhancing flight safety and providing aviation personnel with a healthy and safe work environment.

The NAC intends to provide recommendations on how to handle reports at a later stage, in addition to the concrete advice given in this note. The Technical Report CEN/TR 17904 and other studies will be considered in this regard. This could encompass actions taken after a report has been filed,

such as how the aircraft is treated and how personnel who suspect exposure or experience symptoms of potential exposure to chemical substances in cabin air are managed.

## **Training Recommendations**

Airlines are legally obligated to provide annual training for cabin, cockpit, and technical personnel. The NAC provides the following concrete recommendations:

1. Train cabin, cockpit, and technical personnel annually on topics such as the cabin air source, bleed air, potential exposures during fume events, standard operations, and tasks. Additionally, inform them about potential adverse health effects and symptoms resulting from potential exposure.
2. Train cabin, cockpit, and technical personnel annually on how to recognize and distinguish different odors through odor descriptions (without actual exposure to odors). It is explicitly not intended for personnel to be exposed to hazardous substances as part of the training.
3. Train cabin, cockpit, and technical personnel annually about possible symptoms in the event of a fume event, including dizziness, nausea, and disorientation, and inform them about accessing medical care after a potential incident.
4. Train cabin, cockpit, and technical personnel annually on the methods and procedures for reporting odors and fume events, along with related symptoms.
5. Train all relevant employees in the safety and health departments and medical services on the above points.

## **Recommendations Regarding Reporting**

The Aviation Incident Analysis Bureau (ABL) registers and analyzes mandatory incident reports in Dutch civil aviation. The NAC provides the following concrete recommendations:

1. Report to the NAC at least annually on developments in the number of reports. This will be included in the annual NAC report.
2. Take the initiative to establish more detailed standard terms for reports in consultation with the NAC, thus enabling improved registration within the ABL reporting system (ABL utilizes the European ECCAIRS reporting system, which is not easily adjustable; therefore, the advice is directed towards the reporters rather than modifying the system.)